What Is Claimed Is:

1.   An STS frame-ATM cell circuit emulation apparatus for cellularizing an STS-(N×M) formed by multiplexing M STS-N frames formed from different channels into ATM cells and multiplexing M different STS-N frames assembled from ATM cells into an STS-(N×M) frame, comprising:

circuit termination means for inputting and outputting frame data from and to a circuit;

buffer means for inputting and outputting an ATM cell sync signal and ATM cell data from and to an ATM switch; and

segmentation means and reassembly means connected between said circuit termination means and said buffer means;

said circuit termination means outputting frame data from the circuit as a frame pulse signal and frame data to said segmentation means;

said segmentation means outputting the frame pulse signal and the frame data from said circuit termination means as an ATM cell sync signal and ATM cell data to said buffer means;

said buffer means temporarily storing and then outputting the ATM cell sync signal and the ATM cell data from said segmentation means to the ATM switch, said buffer means temporarily storing and then outputting the ATM cell sync signal and the ATM cell data from the ATM switch to said reassembly means;

said reassembly means detecting a frame of an abnormal length from the ATM cell sync signal and the ATM cell data from

said buffer means, compensating, when a frame of an abnormal length is detected, for the frame length of the frame with a next frame and outputting a resulting frame as a frame pulse signal and frame data to said circuit termination means.

5   2. An STS frame-ATM cell circuit emulation apparatus as claimed in claim 1, wherein said reassembly means includes:

a VPI/VCI supervision section for supervising a VPI/VCI in an ATM cell header of the ATM cell sync signal and the ATM cell data;

10   a structured pointer supervision section for supervising structured pointer information indicating the top of an STS frame to detect an abnormal length of the frame;

a decellularization section for extracting an AU-pointer value and payload data values from an ATM payload in an ATM

15 cell and decellularizing the AU-pointer value and the payload data values for each frame; and

an AU-pointer rewriting section for compensating, when said structured pointer supervision section detects an abnormal length of the frame, for the abnormal length of the frame with

20 the payload of the next frame and rewriting the AU-pointer value.

      3. An STS frame-ATM cell circuit emulation apparatus as claimed in claim 2, wherein said VPI/VCI supervision section receives the ATM cell sync signal and the ATM cell data inputted thereto from the ATM switch, identifying data for the individual

25 channels and outputting structured pointer values distributed for the individual channels to said structured pointer

supervision section, and said structured pointer supervision section detects the structured pointer values of the individual channels, outputs the structured pointer values as structured pointer information to said AU-pointer rewriting section,

5 checks the frame length based on the structured pointer values and transmits, when a frame of an abnormal length is detected, an abnormal length frame signal to said AU-pointer rewriting section, whereafter said AU-pointer rewriting section detects a data byte number corresponding to the abnormal length of the

10 frame based on the abnormal length frame signal and compensating for the frame length with the payload of the next frame.

4. An STS frame-ATM cell circuit emulation apparatus as claimed in claim 3, wherein, when said AU-pointer rewriting section compensates for the frame length with the payload data

15 of the next frame, said AU-pointer rewriting section rewrites the AU-pointer value for the frames next to the frame with which the abnormal length is detected.

5. An STS frame-ATM cell circuit emulation apparatus as claimed in claim 3, wherein the frame of the abnormal length

20 is a short frame or a long frame.

6. A frame length compensation method for an STS frame-ATM cell circuit emulation apparatus for cellularizing an STS-(N×M) formed by multiplexing M STS-N frames formed from different channels into ATM cells and multiplexing M different STS-N frames

25 assembled from ATM cells into an STS-(N×M) frame, comprising the steps of:

outputting frame data from a circuit received by circuit termination means as a frame pulse signal and frame data to segmentation means;

outputting the frame pulse signal and the frame data from

5   said circuit termination means as an ATM cell sync signal and ATM cell data to buffer means;

temporarily storing into said buffer means and then outputting the ATM cell sync signal and the ATM cell data from said segmentation means to an ATM switch;

10   temporarily storing into said buffer means and then outputting an ATM cell sync signal and ATM cell data from the ATM switch to said reassembly means; and

detecting a frame of an abnormal length from the ATM cell sync signal and the ATM cell data, compensating, when a frame

15   of an abnormal length is detected, for the frame length of the frame with a next frame by said reassembly means and outputting a resulting frame as a frame pulse signal and frame data from said reassembly means to said circuit termination means.

7. A frame length compensation method as claimed in claim

20   6, wherein said reassembly means:

supervises a VPI/VCI in an ATM cell header of the ATM cell sync signal and the ATM cell data;

supervises structured pointer information indicating the top of an STS frame to detect an abnormal length of the frame;

25   extracts an AU-pointer value and payload data values from an ATM payload in an ATM cell and decellularizes the AU-pointer

value and the payload data values for each frame; and

compensates, when an abnormal length of the frame is detected, for the abnormal length of the frame with the payload of the next frame and rewrites the AU-pointer value.

5   8.   A frame length compensation method as claimed in claim 7, wherein the ATM cell sync signal and the ATM cell data inputted from the ATM switch are received and data for the individual channels are identified and then structured pointer values distributed for the individual channels are outputted, and the structured pointer values of the individual channels are detected and the frame length is checked based on the structured pointer values and then, when a frame of an abnormal length is detected, an abnormal length frame signal is generated, whereafter a data byte number corresponding to the abnormal length of the frame is detected based on the abnormal length frame signal and the frame length is compensated for with the payload of the next frame.

          9.   A frame length compensation method as claimed in claim 8, wherein, when the frame length is compensated for with the payload data of the next frame, the AU-pointer value for the frames next to the frame with which the abnormal length is detected is rewritten.

          10.   A frame length compensation method as claimed in claim 8, wherein the frame of the abnormal length is a short frame or a long frame.